

NPTEL Video Lecture Topic List - Created by LinuXpert Systems, Chennai

NPTEL Video Course - Chemical Engineering - NOC:Fluid and Particle Mechanics

Subject Co-ordinator - Prof. Basavaraju

Co-ordinating Institute - IIT - Madras

Sub-Titles - Available / Unavailable | MP3 Audio Lectures - Available / Unavailable

Lecture 1 - Introduction
Lecture 2 - Fluid Statics
Lecture 3 - Newton Law of Viscosity
Lecture 4 - Equation of Continuity Differential
Lecture 5 - Equation of Linear Momentum - 1
Lecture 6 - Equation of Linear Momentum - 2
Lecture 7 - Bernoulli's Equation
Lecture 8 - Solution of Navier Stokes - 1
Lecture 9 - Solution of Navier Stokes - 1
Lecture 10 - Introduction to cylindrical coordinate systems
Lecture 11 - Continuity equation in cylindrical coordinates
Lecture 12 - Solution of Navier Stokes in the Cylindrical co-ordinate system - 1
Lecture 13 - Solution of Navier Stokes in the Cylindrical co-ordinate system - 2
Lecture 14 - Circular poiseuille flow
Lecture 15 - Shear Stress Distribution
Lecture 16 - Flow between two concentric cylinder
Lecture 17 - Taylor couette flow
Lecture 18 - Viscosity and Momentum Transfer
Lecture 19 - Device For Measuring Fluid Viscosity
Lecture 20 - Fluid Properties And its Behaviour
Lecture 21 - Tutorial 4
Lecture 22 - Choice of Scaling Parameter
Lecture 23 - Non Dimensional analysis
Lecture 24 - Non-dimensional analysis - 2
Lecture 25 - Non-dimensional analysis - 3 (Buckingham Pi Theorem)
Lecture 26 - Non-dimensional analysis - 4 (Trinity test)
Lecture 27 - Non-dimensional analysis - 5 (Concept of similarity)
Lecture 28 - Characterization Of Particles - 1
Lecture 29 - Characterization Of Particles - 2

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Lecture 30 - Motion of a Particle in a fluid
Lecture 31 - Brownian motion and electrophoresis
Lecture 32 - Sedimentation and Separation
Lecture 33 - Settling velocity - Stoke's regime and Newton's regime
Lecture 34 - Applications of settling - I
Lecture 35 - Applications of settling - II
Lecture 36 - Colloidal aggregates - Introduction
Lecture 37 - Settling of colloidal aggregates
Lecture 38 - Tutorial 5
Lecture 39 - Settling of colloidal aggregates - free settling
Lecture 40 - Settling in Multiple Particles System
Lecture 41 - Flow Through Packed Bed
Lecture 42 - Pressure Drop Through Packed Bed
Lecture 43 - Tutorial 6
Lecture 44 - Pressure Drop Through Packed bed Continue
Lecture 45 - Fluidized Bed - 1
Lecture 46 - Fluidized Bed - 2
Lecture 47 - Filtration - 1
Lecture 48 - Filtration - 2
Lecture 49 - Tutorial 7
Lecture 50 - Laminar and Turbulent Flows - 1
Lecture 51 - Laminar and Turbulent Flows - 2
Lecture 52 - Laminar and Turbulent Flows - 3
Lecture 53 - Turbulent Stress and Turbulent Shear Layer
Lecture 54 - Turbulent Flow near a wall and in a pipe
Lecture 55 - Effect of rough Walls
Lecture 56 - Roughness in Turbulent Pipe Flow
Lecture 57 - Pipes of non-circular cross section
Lecture 58 - Minor Losses, Sudden Expansion and Contraction
Lecture 59 - Friction Losses in Sudden Expansion
Lecture 60 - Tutorial 8
Lecture 61 - Momentum and Kinetic Energy Correction Factor
Lecture 62 - pressure drop in pipes which connected in series
Lecture 63 - Pressure Drop in Pipes Which Connected in Parallel
Lecture 64 - Pressure Drop in Pipes Which Connected at Junction
Lecture 65 - Boundary Layer
Lecture 66 - Boundary Layer - Momentum Integral Analysis - 1
Lecture 67 - Boundary Layer - Momentum Integral Analysis - 2
Lecture 68 - Boundary Layer - Differential Approach

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Lecture 69 - Laminar and Turbulent Boundary Layer

Lecture 70 - Tutorial 9